

**Office of Information Technology (ITECH)
Annual Report for Fiscal Year 2016**



Introduction

The Department of Human Resource Management (DHRM) has a goal to “*create technologically advanced systems and efficient infrastructure capabilities to enable timely delivery of accurate and consistent employment information throughout the Commonwealth;*” The goal seeks to achieve evolving, robust, secure and integrated human resource information systems that support and assist management and human resource practitioners in addressing ongoing business needs and responding to new information challenges.

During the fiscal year (FY) 2015-2016 (July 1, 2015 – June 30, 2016) DHRM has continued to work towards this goal by leveraging the use of technology with existing resources to develop improved information technology (IT) support and to maintain continuity of service for its existing systems, data warehouse and web sites across a changing technology landscape.

In support of the Governor’s initiatives, DHRM has continued to enhance the employer, employee, and citizen portals whereby DHRM constituents access its systems. During FY 2015-2016 DHRM began a project to migrate its core legacy mainframe application to a server-based environment.

Presentation

The Office of Information Technology (ITECH) provides information technology (IT) technical support, systems administration and telecommunications support for DHRM to accomplish this technological goal.

IT technical support encompasses the DHRM mainframe legacy systems, web-based applications, web-based services and web sites, internal technical infrastructure, external electronic interfaces, and IT administration support. Technical support also includes application development and maintenance, database and network administration, reporting, and operations support.

The mainframe legacy systems include:

- **PMIS:** the Personnel Management Information System automates core HR administrative functions for COV executive branch classified and faculty employees.
- **BES:** the Benefits Eligibility System automates core health benefits eligibility and administrative functions for COV employees, retirees and their dependents; and also The Local Choice (TLC) coverage for participating local governments’ employees and dependents.
- **IPP:** the Incentive Pay for Performance subsystem of PMIS automates the performance reviews, statewide salary increases and bonuses for COV executive branch classified and faculty employees.
- **EPR:** the Employee Position Reports subsystem of PMIS reports staffing levels by type of funding (and budgeted MEL) for COV executive, legislative, judicial and independent agencies and colleges and universities.
- **WAGE3:** the Wage-3 subsystem of PMIS automates the tracking and reporting of hourly employees for PMIS agencies that opt to use the subsystem.
- **WN:** the Written Notices subsystem of PMIS automates the formal disciplinary action process for COV employees in PMIS.

The web-based applications and web sites include:

- **DHRM web site:** the agency official web site and its supporting web pages and publicly available reports and statistics
- **EmployeeDirect:** the Commonwealth state employees and retirees “public facing” secure web portal
- **HuRMan secure web portal:** the suite of secure web-tools for DHRM customer agencies and vendors:
 - HuRMan agency repository
 - The DHRM suite of integrated data warehouse tools
 - EEO assessment tools

- RMS Applicant Flow (Recruit Management tools)
 - Workforce Planning tools
 - HR-At-a-Glance reports
 - Written Notice Query tool
 - EPR/FTE reporting
 - P3/P3A reporting (PMIS Turnaround Documents)
 - Salary Survey Reference Data
 - Other supporting utility tools
- **TAL:** The Time, Attendance and Leave system automates timesheet and leave administration and reporting for those agencies that participate in it.
 - **ASYS:** the automated system interface bridge that agencies can use to build a real-time web-based interface between their local HR systems and PMIS so as to reduce or virtually eliminate “double keying” into both systems.

Internal infrastructure includes:

- The Unisys mainframe PMIS and BES databases
- The DHRM SQL Server databases
- The DHRM SAS data-warehouse databases
- The TAL databases; and
- The DHRM-related server and network environments in which those reside.

External electronic data interfaces (EDI) include batch reports and data files provided for DHRM agency customers and data partners or submitted from them to DHRM.

IT administration support includes:

- DHRM Help Desk operation for all DHRM systems.
- Security access administration for all DHRM secure systems: mainframe, web-based and EDI.
- Statewide administration of the Commonwealth of Virginia Knowledge Center (COVKC), a learning management system solution implemented to provide and manage online training and classroom registration for all state employees and other constituents.
- The full range of telecommunications administration support for DHRM.
- IT support for purchased software.

The ITECH team consists of twenty-two full-time classified employees, seven part-time Wage employees and two full-time contractor employees.

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| ITECH | |
| Belchior Mira | Leadership, telecommunications and administrative support Director and DHRM Chief Technology Information Officer, DHRM Information Security Officer (ISO backup) |
| Kathryn Brooks | Executive Administrative Assistant, Telecommunications Coordinator |
| Legacy Team | |
| David Savanyu | Unisys-based systems support PMIS-BES Online Senior Developer and Unisys mainframe Database Administrator (DBA), PMIS Migration Project support |
| Steve Hastey | PMIS Electronic Batch Interfaces, PMIS-IPP, Senior Systems Analyst, PMIS Migration Project support |
| Bob Fraser | BES Electronic Batch Interfaces, Systems Analyst, Systems Developer, PMIS Migration Project support |
| Norman Christensen | PMIS-EPR, PMIS-EEO-4, Unisys Security Administration and Connectivity Support, Senior Systems Analyst, DHRM Information Security Officer (ISO backup), PMIS Migration Project support |

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| PMIS Migration Team | PMIS Migration Project |
| Leonard Nottingham | Project Manager |
| Bob Crawford | Quality Assurance (QA) Manager |
| Pamela Mitter | QA Lead (PMIS) |
| Bill Wittmer | QA Lead (BES, EPR) |
| Jamie Norman | QA Application Tester |
| Joann Stamper | QA Application Tester |
| Cheryl Gibson | QA Application Tester |
| Rick Wilmoth | QA Application Tester |
| Praisie Kuriakose | Applications Developer |
| Will Richards | Applications Developer |
| Bob Fraser | Systems Analyst, Unisys technical support |

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| SWAT Team | Server-based and web-based systems support (Servers, Web, Administration and Technology (SWAT)) |
| Bradley Paul | Web Support Team Leader, Senior Application Architect, SQL server DBA, network administrator, DHRM Information Security Officer (ISO), PMIS Migration Project support |
| James Lock | Network administrator |
| Michelle Thompson | DHRM Web Master, Web Applications Designer/Developer |
| Melanie Kuftic | BES, Senior Web Applications Developer, Systems Analyst, CRM Administrator, backup SQL server DBA and network administrator |
| Michael Fazar | BES, Web Applications Developer, Web Security Administration, DHRM Help Desk Administrator |
| Alexander Hamilton | COVKC Enterprise Systems Administrator |
| Butch Eudailey | COVKC Enterprise Systems Help Desk Support |
| Steve Vaughan | Web Applications Developer |
| Michael Nakatsuka | Web Applications Developer |
| Wayne Walter | Web Application System Architect |
| Don Tebbet | Web Application Developer |

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| SAS Team | SAS Data warehouse tools and support |
| David Martinez | SAS Application Architect, SAS-DBA, SAS Senior Developer |
| Wei Han | SAS Application Architect, SAS-DBA, SAS Senior Developer |

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| TAL Team | Time, Attendance and Leave (TAL) project support |
| Leonard Nottingham | TAL Project Manager, PMIS Migration Project Manager |
| Michael Barry | TAL Lead Analyst |
| Natalie Paul | TAL Lead Developer |
| Sheryl Ackerman | TAL Developer |

Agency Strategic Plan and Executive Agreement Key Measures

As stated in the agency strategic plan, the Office of Information Technology (ITECH) falls within the Administrative Service Area for DHRM. This service area uses mainframe technology and cutting-edge web-based technology to provide interactive applications and electronic interfaces to support a range of Human Resource (HR) functions, including recruitment, policy, benefits, compensation, communications, EEO services, training and reporting.

Scale and Scope of DHRM-ITECH Automated Systems

The web-based accesses and information that flows into and out of all DHRM automated systems reflect the breadth of support those web sites and systems provide.

DHRM Mainframe Legacy Systems: PMIS and BES

As of FY 2015-2016, the PMIS and BES legacy systems have some 1100+ active users across 240 State agencies, including colleges and universities. These users directly access PMIS-BES to administer HR for approximately 100,000 salaried and wage State employees and health benefits for approximately 300,000 COV and local government employees, retirees and their dependents.

In FY 2015-2016:

- PMIS-BES recorded approximately **12,524,056** online transactions.
- PMIS-BES generated approximately **15,000** reports and data files for distribution to its customer agencies and data partners.

DHRM Web Applications

The DHRM web applications and web site pages provide the electronic “public face” for DHRM. The ITECH web applications include both unrestricted web tools to share public information; and registration-restricted web tools to support DHRM customer agencies, data partners and constituents in the administration of HR and health benefits.

In FY 2015-2016 (approximate totals):

- The DHRM agency web site had 51,841,000 hits
- The Virginia Jobs web site had 7,318,410 hits
- The DHRM-CVC web site had 1,426,000 hits
- The Local Choice web site had 581,000 hits
- The CommonHealth web site had 2,386,500 hits

In FY 2015-2016, for the DHRM web applications (approximate totals):

- The EmployeeDirect Portal had 81,592,500 hits
- The DHRM secure web tools had 4,969,800 hits
- The ITECH (& P3/P3A) web site had 1,114,000 hits
- The Statewide Communiqué web site had 17,969 hits

ITECH Accomplishments for FY 2015-2016

The scope of ITECH system support includes the development of new applications and the ongoing enhancements to and operations of existing applications. Taken together, the ITECH support provides adaptability and continuity of service and leverages technology for DHRM to serve its constituents in an ever-changing and dynamic environment. The following describes the ITECH team accomplishments for FY 2015-2016.

ITECH Legacy Accomplishments for FY 2015-2016

The legacy team purview encompasses development and maintenance support for the mainframe systems described above. This team is responsible for all online and batch mainframe programs and operational processes including “downstream” information flows, internally to support the data warehouse and externally to support DHRM customer agencies and EDI business partners.

The following system enhancements to PMIS and its subsystems were completed:

PMIS-BES online transactions and database management:

- This past year has been a challenge to maintain PMIS online applications because of the migration efforts which meant that DHRM had to restrict changes to a minimum. This meant that many of the problems were solved by manual workarounds instead of making necessary program changes. In addition, when it was apparent that the delivery date would not be met, changes had to be made to in a much shorter timeframe and in a way that was less than desirable.
- Still, some changes were needed. The Affordable Healthcare Act had new reporting mandates that forced changes into how we create and store participant history records. The history area was never intended to be an input for batch reporting and new indicators and records were created to facilitate this type of reporting.
- The ACA is now requiring to report as a waiting period for employees for the entire month when they are hired when those employees who are hired in the middle of a month and their waived status does not begin until the first of the month following their hire date. All PMIS transactions can create a BES record have been upgraded to now record this waiting period. The changes in BES transactions that create non-PMIS employees waiting periods (including TLC) are completed in QMIS and are ready to go live next week.
- Social security number is still, unfortunately, a major key field in much of PMIS/BES (It is unfortunate that the new migrated system will continue to use SSNs as a primary key). However, the entry of an incorrect SSN often means extensive internal adjustments to correct the operator entry error. Because of the new ACA reporting requirements, an accurate SSN is now even more vital. We have had more dependent SSN changes/corrections in the past year than in all the previous years combined. Agencies often ignored dependent SSN errors in the past, or simply entered garbage SSNs just to get the action entered. Now that the ACA is requiring accurate SSNs, these years of agency entry blunders have added a substantial workload to the BES staff, and a new SSN cross-reference table system has been created to help facilitate these reporting requirements.
- With TLC, participants can now have more than one coverage plan, even though SSN, the key, must be unique. The new SSN cross-reference table system, similar to the one mentioned above, was created to work around this problem.
- The way participant history records are created and stored also had to been updated to handle the new requirements of premium rewards.
- New EEO requirements have required additional race codes to be added to PMIS transactions and reports.
- System adjustments were made to accommodate Open Enrollment, including expanding the standard July 1st date to accommodate different OE dates used by TLC localities.
- PMIS/BES System adjustments were made to handle entry by operators at the TLC localities (BADirect). BADirect is not yet operating, but the transaction are now prepared to accommodate their input when BADirect becomes functional.

- Additional database areas have been expanded to allow PMIS/BES to grow until the migrated system is ready.

Legacy Systems and Batch Processing and Operations:

- ITech was responsible for the PMIS statewide salary update implementation of the August 10, 2015 2% base salary increases, employee salary compression increases, high-turnover roles increases, and Security Officer role salary increases which yielded an average increase of 3.86% for classified employees: ITech participated in the planning and guidance coordination with line agencies and central agencies, and provided the technical development along with the testing for the statewide selection, qualification, and salary increase calculations for PMIS employees including delivery of the payroll interface file to DOA for CIPPS system update, and to VRS for VNAV system update. Support
- PMIS IPP: Processed IPP 11/25/2015 Update. ITech implemented the 2015 Performance Management (IPP) statewide rating evaluation collection, storage and reporting. In order to reduce keying time, ITech again offered to enter a "C" rating for all unrated employees. Agencies choosing this option entered "X," "B," and "L" ratings prior to the mass update.

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|-----------------------|---|--------|
| Total IPP | = | 70,816 |
| Number rated X/C/B | = | 63,273 |
| Records with rating B | = | 152 |
| Records with rating C | = | 54,328 |
| Records with rating X | = | 8,793 |

- PMIS Nightly Cycle Production Support: Maintenance and on-call support. Resolved system interrupts as needed including manual FTP deliveries to recover from server and host upgrade issues.
- VRS Data Interchange Support: ITech continued monitoring interface data file feeds.
- VDOT Cardinal Team Support: Continued support by responding to inquiries and assisting in resolving interface file server delivery issues in the maintenance of the interface.
- Recognition Earned Leave Support: Statewide Recognition Earned Leave support given in particular for Public Service Week in May 2016. .
- PMIS/CIPPS Interface: ITech implemented upgrades as needed to improve the interface support to DOA that permits certain personnel actions documented in PMIS to automatically update the CIPPS payroll system. Continued what has become a year-round and frequent service to provide to DOA CIPPS-formatted batch files to load agency Recognition Earned leave transactions into the CIPPS system.
- PMIS operations support: Continued operational support for the agencies, DOA, VRS, and the DHRM Help Desk.
- PMIS operations support: Maintained the PMIS control-m schedules at VITA for ITech use in monitoring PMIS & BES production cycles.
- PMIS batch support: Maintained the PMIS production runstreams, programs, and server distribution configuration files including upgrades as needed to PMIS batch database programs to higher subschema levels on short notice.
- PMIS batch support: Maintained the data interchange interface for Tier-3 (Charter) Universities UVA and VT that rather than key to PMIS implemented internal systems that provide to DHRM weekly position and employee data plus monthly employee accessions and separations plus monthly Pay Actions and Bonus Actions via interface files.
- PMIS batch support: Maintain and coordinate updates as needed to our employee log and 480 snapshot files and data interchange file data dictionaries.
- PMIS batch support: Assisted the participating non-PMIS agencies with collecting their employee contact data for statewide email broadcasts and publication in the state employee directory to the extent that they choose to send it.
- PMIS: Added to research tools using SQL Server PMIS 480 data made available via an MS Access MDB file connected to SQL Server by linking tables so that users can write and save queries and other MDB objects.
- PMIS: Updated the validity/translate tables (PMTABLS) posted monthly to the ITech website under the Documentation tab on the main ITech webpage, "Other tables used in PMIS (EXCEL version)".

- PMIS: Continued to remove obsolete Unisys disk and tape files, and to provide authorization documentation to VITA as needed for PMIS disk files to keep on permanent disk storage. The removal of obsolete files will also help reduce our Unisys resource utilization bill.
- BES: Implemented support for new vendor QUADMED (Contractor for VCU onsite clinic) in PM9103 (Monthly snapshot of all participants).
- BES: Added support for waived participants that also have a covered dependent.
- BES: Modified PM7051 Benefit-Administrator Spreadsheet to add Date of Birth and SSN for each Benefit Administrator and Payroll Contact
- BES: Developed Local Choice participant report (TLCCNT) by month for internal reporting.
- BES: Affordable Care Act support: Analyzed, identified code requirements and tested impact on PM4401 (rewrote output logic producing the -PARS & -PARSS files).
- BES: Completed additional work in developing ACA Reconciliation Reporting.
- BES: Modified PMCRM1: Added Plans 080 ("Waiting Period") and 090 ("Full Time Not Offered; Increased number of Employee Status Abbreviations to 65; added code to check table limit to avoid random IGDM (storage limit violations)).
- BES: Provided technical support for Conexus (Flex Benefits Vendor): Flex Spending Account Support, Weekly Processing and Reconciliation Reporting.
- Provided PMIS Migration Support: Build and run download FTP scripts for all production files to be used in testing and verification of Fujitsu's C#/SQL conversion programs; Tested Fujitsu's delivered runs and verify results against downloaded production files.

Other Routine Legacy System Support:

- PMIS EPR: Completed annual FY rollover changes and MEL updates to EPR.
- PMIS-BES: Annual Disaster Recovery Test: Participated in VITA/NG annual multi-agency DR testing (August 2015) and in preparations for next annual test in August 2016.
- PMIS-BES-Unisys: Completed 57 requests for applications-related, network connectivity-related or Unisys mainframe-related technical support.

The following security administration accomplishments were completed:

- Security administration (Unisys mainframe): Completed 575 requests to create/change/remove Unisys mainframe logon userids or application security profiles for PMIS-BES users.
- Completed 58 requests for account-access-related technical support for (account or access inquiries, unlocks, resets or logon-related how-to) for DHRM Unisys PMIS-BES mainframe applications.
- Security administration (web applications): Completed 67 requests to create, change or remove logons for DHRM secure web applications.
- Completed 110 requests for account technical support for (account inquiries, unlocks, application how-to) for DHRM secure web applications
- Security administration (secure FTP access): Completed 150 requests/inquiries related to secure FTP accounts to the DHRM HuRMan File Repository.

The following legacy team support accomplishments for the PMIS Migration Project were completed:

- Provided source code, documentation and guidance, and operational support to the ongoing Fujitsu PMIS migration project.
- Built and ran download FTP scripts for all production files to be used in testing and verification of Fujitsu's C#/SQL conversion programs.
- Tested Fujitsu's delivered runs and verified results against downloaded production files.
- Set up 6 Fujitsu staff with Unisys Host-C access credentials.

- PMIS-BES has some 150 repeating and scheduled production batch “jobs” that send data or reports (some 15,000 per year) to DHRM customers or other automated system. These jobs run on a daily, monthly, quarterly or yearly schedule. Most (120+) of the jobs use one of several formats of dynamic date parameters for their “select logic” to determine what specific data to extract. DHRM-ITECH has an in-house mainframe utility (CONTROLCARD) that updates and sets these dynamic date parameters on an ongoing basis.
 - In support of the PMIS Migration project, ITECH performed a detailed analysis of the CONTROLCARD utility outlining the specifics of each date parameter format and cross-mapping the formats to each of the batch jobs updated by the CONTROLCARD utility. This will be valuable in validating parallel batch processes between the mainframe PMIS and the new server-side PMIS.
- The output data files of the PMIS-BES repeating batch jobs use a variety of different record format descriptions. Record format descriptions ascribe “data names” to specific column positions of each record in a data file.
 - In support of the PMIS Migration project, ITECH built models of the various record formats showing which column positions are ascribed to each data name. The models were built for some 20 log record formats and for the major extract record formats. These will be valuable in identifying differences and tracking them to data file names and program logic when validating parallel batch processes between the mainframe PMIS and the new server-side PMIS.
 - In support of the PMIS Migration project, ITECH built a *PMIS Batch ECL Guide*, which explains how DHRM generally sets up its Unisys batch jobs and explains some common Unisys batch Executive Control Language (ECL) commands. The guide is for project staff who are unfamiliar with the Unisys mainframe, but who may need to reconcile batch processes between the Unisys environment and the new server-PMIS environment.

PMIS Migration Project Team Accomplishments for FY 2015-2016

In FY15 DHRM formally began a project to migrate its mission critical mainframe systems to a server environment. VITA contracted with Fujitsu America, Inc. (“Fujitsu”) to provide mainframe migration services. Using the VITA contract, DHRM executed a statement of work with Fujitsu to migrate PMIS, BES and other related mainframe subsystems to a Windows Server environment. DHRM received \$5,494,400 to complete the project. The project team is targeting a go-live for the migrated systems in the new environment in the Nov/Dec 2016 timeframe.

FY16 efforts on the PMIS Migration Project include:

- Added 6 restricted staff positions (2 salaried and 4 Wage) to existing DHRM staff to create a migrated code test team. This team has created a test base of over 1900 test scripts for the following migrated code objects:

| Type | Count |
|-----------------------|-------|
| Online programs | 206 |
| Batch programs | 263 |
| Batch Jobs (ECL Runs) | 237 |

As of this writing this test team had performed many of these test scripts as well as a considerable number of ad-hoc (estimated at 1000+) test cases. The team’s efforts have identified hundreds of defects that have been and are being addressed by Fujitsu.

- Established multiple environments including:
 - Established development, test and production environments
 - Established web servers, batch servers and database servers
 - Established and re-loading a mainframe test environment (“Host C”)
- Developed a program to automatically compile the daily builds on the DHRM environment to ensure PMIS can be compiled and walked through by the Migration team.
- Monitored the code for compilation problems and coordinated with FUJITSU to ensure problems will be fixed.

- Set up a testing server to ensure that the Batch programs for PMIS function properly once migrated.
- Coordinating / communicating with multiple organizations to continue to move the project forward including:
 - Working with VITA PMD to keep VITA apprised of project progress
 - Working with VITA SCM to craft necessary change orders to execute with project vendor
 - Working with VITA & DSS to determine the timing of moving DHRM systems off the mainframe
 - Working with VITA mainframe services team to have Host A data stripped and refreshed into the project's Host C test environment
 - Working with DPB to ensure necessary funding is in place for project efforts
 - Working with VRS and DOA to coordinate FY17 testing efforts on file outputs from DHRM's migrated systems
- Complementing the test team and preparing for the production cutover of the migrated system are 2 Windows platform developers who will help support the migrated system.

ITECH SAS Data Warehouse Team Accomplishments for FY 2015-2016

The SAS data warehouse team is responsible for development and maintenance of the suite of web-enabled SAS applications that support the DHRM Workforce Program and accommodate data analysis and reporting.

SAS Major Milestone Projects:

- **SASVA Development and Administration:** Continued to implement an enterprise wide reporting and analytics solution by integrating traditional data warehouse resources with new SAS Visual Analytics tool. Created a designated VA Development area in P03 with connections to shared destination folders in SAVVA server (P04) to ensure auto or manual data loading. Completed multiple continuous renovation change requirements from AHRs for Transaction and Employee SAS data sets including format changes, alias changes, and addition of more than 100 new variables to the data sets, standardization of age range format and adoption of proper case in variable labeling for both data sets. Built metadata and scalable logical folder structure as a model to ensure easy setup based on projects or business lines. Completed folder configuration to allow sharing of data, explorations, analytics and reports between AHRs consultants. Completed admin tasks of user management, data library setups and metadata server maintenance using best practices. Resolved multiple issues including metadata server backup, open street map, geographic data, PDF printing and default aggregation. Completed SAS 9.4 T1M3 software installation, license verifications, and system preparation for SASVA version upgrade from 7.1 to 7.3.
- **Server Migrations to P03:** Fully completed server migrations to P03. Major completed tasks include successfully relocating all P01 and P02 data to P03. Restructured SAS server architectures with web servers. Resolved all input and output connection issues. Reinstall Excel 2010 64 bit to SAS server; Completed 24X7 Scheduler configurations, jobs setups and resolved permission issues. Tested and implemented SAS program code modifications as required by global format environment changes.
- **SAS server Development environment reconstruction:** Successfully rebuilt SAS server Development environment. Reconfigured SAS/Intranet CGI environment by modifying broker.cfg file. Completed all SAS applications code upgrades, problems diagnoses, tests and required system configurations, testing and data backup and SAS code upgrades.
- **EEO Query tool:** Kicked off development of enhanced tool as this will give EEO personnel the ability to query EEO data marts for selected data requirements which EEO Assessment does not provide. Once complete, this will aid the user community in selection of records which will augment the current tools accordingly. Also, continue to work with compliance on development aspects in order to deliver a product which is both useful and intuitive.
- **Applicant Flow data FTP new solution:** Successfully worked out a solution with PeopleAdmin to remedy FTP issue on their end as their technical staff failed to

understand the impact of the size of our data requirement. As a result, PeopleAdmin was unable to deliver Applicant Flow data in a timely fashion. We are now able to receive the data on a daily basis for just the delta population as we made modifications to our process to capture updates accordingly. We are still working with PA technical consultants to identify a more efficient delivery mechanism in order to secure a more stable environment going forward. As for now, we are able to successfully use their data source to update the needed metrics for our EEO Assessment application.

- HR At-A-Glance Reports: Continued enhancement and maintenance of the web-enabled HR At-A-Glance Reports (AAG) application for the production of the June 2015 publications. These reports provide agency management and HR offices more than 100 statistical points of interest, including charts with trend dynamics over several years. In support of the reporting tool, the following tasks were performed: Updated procedures to facilitate modifications pertaining to data source changes. Enhanced code to satisfy newly defined requirements and modification requests. Continued to streamline the ETL (Extract, Transform, and Load) process to garner AAG metrics from a variety of data sources into specific SAS data marts for each reporting category in order to 1) simplify the update process, 2) facilitate the research of problematic data metrics in each category, and 3) support further development of query and analytical modules going forward. Continued to capture external files from DHRM contributors and other sources, such as DPB for budgetary data, the Commonwealth Data Point website for agency training expenses and the APA for personal service expenditures while simultaneously developing SAS code to include 27 report items that were previously provided from other sources. Produced test results for thorough verification of statistics for newly developed, as well as pre-existing modules. Research has commenced to integrate SAS Visual Analytics as an augment to this application. Datamarts which are used to generate the yearly At-A-Glance reports are being consolidated to be made available to SAS Visual Analytics.

SAS: The following development, enhancements and maintenance were completed in the suite of the Workforce Planning Program and other DHRM applications, along with the web-based processes and support functions:

SAS Major Milestone Projects:

- Completed modifications of the eTrans Workforce Query tools to add Non-classified Bonus (reason code 225) check box to eTrans query tool in HuRMan production environment so that it reflects the reason code changes since September, 2015.
- Completed Severance Benefits Calculator change requests from AHRS: Completed annual modifications, testing and implementation of the tool to reflect new health plans and rates and produce statistics based on the 2016 fiscal year parameters.
- Maintained the salary reports and files in the State Salary Survey tool.
- Maintained the reports and files in the State Salary Survey tool; Updated data for the Bureau of Labor Statistics (BLS);
- Completed all code changes for PMIS Race values changes effective 07/01/2016.
- Completed modifications to the EEO4 web application in preparation for data entry of wage statistics, file production and reporting for 2015.
- Completed Privatized Positions Report FY2015.
- Updated Indicators for FY 2015 for EEO Assessment Summary Report.

SAS System Administration, Maintenance and Planning

- Configured environment parameters in the development, test and production environments.
- Maintained the data warehouse for the web applications and the SAS production schedule; produced monthly, semi-monthly, quarterly and annual reports and data files to provide up-to-date information in the suite of Workforce Planning applications.
- Performed ongoing SAS database administration and management daily by monitoring the SAS Server environment, updating and executing jobs, scheduling and monitoring batch processes, verifying connectivity, ensuring storage capacity for temporary files and

hard disc used in development and user query activity in the test and development SAS server environments, compressing and archiving files for increased storage capacity in production and resolving slow through-put processes in the production environment.

- Completed SAS Server and PC workstation software annual maintenance functions that included license and software renewals, update of SID file and instructions for annual renewal of SAS PC software, cost analysis, term code update, installation of new user software and ODBC drivers.
- Provided functional support to DHRM customers and provided technical support to programmers, network administrators, and system engineers. Periodically, assisted SAS users in AHRS by analyzing and enhancing program code and assisting with the annual renewal of SAS PC software.

SAS: State Knowledge Center User Database Administration, Maintenance and Development

- Administered the Knowledge Center employee profile database.
- Continued to enhance the series of programs that support the production of the LMS State Organization Hierarchy and User Profile files and developed programs to incorporate new requirements and satisfy management and agency requests, such as Completed domain id updates on an ad hoc basis.
- Continued to perform system analysis that resulted in the optimization of the LMS programs and file formats; Identified and resolved LMS system errors, data issues and discrepancies in the employee hierarchy table; Modified and maintained system parameters that resulted in the resolution of issues in the LMS organization chart and system profiles.
- Monitored Norfolk City job id changes and implemented updates as needed.

SAS: Development, Modifications & Preparations of Ad-hoc and Periodic Reports

- Responded to help desk requests such as ad-hoc and data inquiries, legislative mandates, and FOIA requests, with emphasis on providing exceptional customer service and accurate and timely information; Produced many data files and reports that covered HR data and processes, such as employee and position inquiries, current and historical full-time equivalent and headcount employment statistics, privatization listings, quarterly layoffs, turnovers, leave reporting, written notices, VRS retirement plans and service, agency and statewide training costs, historical transaction searches, etc....The reports provided employment data to assist agency management and the Commonwealth constituents in their research, analysis, decision-making processes, reporting, and audits.
- Provided quarterly and annual Layoff reports per AHRS requests.
- Provided monthly APA Termination and Salary Change reports.
- Completed Training Expenditures FY2015 Sum-up Report for parent agency 701 as well as all state agencies.
- Modified programs to generate the legislative mandated reports: (1) Annual Statewide Voluntary & Involuntary Termination Report for FY 2015 and (2) Annual Employment Statistical Reports by agency and branch for the Governor and members of the General Assembly as required by the Code of Virginia. These reports covered employee statistics for June of each year from 2012 through 2015 and also included the contractor counts as of June 2015.
- Research and remedy all issues communicated by user community in HuRMan application portal. Specifically, EEO Assessment, where server migration and data source modifications resulted in additional process enhancements to assure continued execution on a timely basis. In addition, remedy all other issues which are communicated across remaining applications on the HuRMan portal and assist all users accordingly.
- Continued to respond to help desk requests, such as, ad-hoc and data inquiries, legislative mandates, and FOIA requests, with emphasis on providing exceptional customer service and accurate and timely information; Produced many ad hoc analysis, data files and reports specific to our HR SAS data warehouse.

The ITECH web team encompasses servers, server-based and web-based systems, and related administration and technical support.

The following COVKC Knowledge Center system accomplishments were completed:

- The Virginia Department of Human Resource Management (DHRM) is the business owner and responsible for the statewide administration of the Commonwealth of Virginia's Learning Center, hereinafter referred to as the "COVLC".
 - Operate with a business minded operation plan for the VLC.
 - Improved documentation management.
 - Improve future planning by developing a five year budget.
- Implementing upgrade to Meridian Global 16.2 from Meridian Global 11.3. Projected completion October 2016.
- Conducted a successful COVLC two day workshops at Central Virginia Community College with over 120 Site Administrators in attendance, a significant increase over last year's numbers.
- Re-Organized Advisory Group, constituency is comprised of member agencies of the Commonwealth of Virginia. The purpose of this Advisory Group shall be to advise, assist, support and advocate for the Commonwealth of Virginia Knowledge Center on matters that will strengthen the learning management system, improve user and administration functions, and training.
- Conducted Domain Administrator training on Version 16.2. Training conducted by the Advisory council at six (6) select locations throughout the Commonwealth. Trained approximately 125 domain administrators.
- From July 2015 until June 2016 – 187,466 users took 17,449 courses (classroom or on-line). That is an average of almost 11 courses per user.
- Improved working relationship with the Vendor, meeting with the President Jeff Kristick, sharing our vision and current concerns/issues with the current version of the LMS. Being an advocate for the Commonwealth of Virginia.
- Obtained State funding for the VLC. The primary entities authorized to use the "COVLC" are all State Departments, Boards, Commissions, and Institutions of Higher Education which are identified by their Agency Number. It is now free to the primary entities. Other entities e.g. local government and sub divisions of the local government that meet the criteria of being a local government entity may use upon request the COVLC for an annual fee.
- Explored avenues to improve communication and training (for example, "iLink" webinar).
- Currently working on improving the effectiveness and efficiency of the KC operation.

The following web accomplishments were completed:

- Participated in the PMIS Migration RFP process and evaluation of RFP candidates.
- Supported PMIS Migration project, reviewed code, performed configurations and deployments and tested deliveries.
- Migrated 2003 servers to new server environment
- Participated in PC refresh.
- Redesignated EDR's Intranet application from an ASP.NET Web Forms application to an ASP.NET MVC application and added additional functionality and security features (NOTE: EDR's new application has been deployed to the Intranet and is being tested by EDR staff members).
- Designed and developed Accounts Receivable SQL based application for the Intranet, replacing a 10+ year old Access database.
- Aided CVC and its customers in verifying and updating their Charity data.
- Provided maintenance support to the CVC Database and application (2016 Campaign).
- Designed new Page to track users for the Wellness Wednesday Campaign
- Updated CVC Admin App to MVC
- Added logging to CVC Admin App

- Added Client requested functionality to CVC Admin App
- Updated CommonHealth Website for Dail It Down Campaign
- Ran 404 error reports and tracked down and removed the error links and pages
- Started Re-writing Charity App to run in MVC
- Maintained Awards and Recognition Page
- Maintained CommonHealth and TLC websites
- Maintained Sitefinity CMS for DHRM website
- Maintained Local Choice website.
- Maintained the Jobs website.
- Maintained and periodically updated the ITECH web site.
- Re-designed and maintained the CVC web site to support the 2015 Campaign.
- Created ad-hoc reports to support the CVC campaign
- Provided maintenance for Legislation Tracking application
- Designed and developed Web page and registration for HR Conference
- Continued development, design, and refinement, as well as began testing of SecurePASS portal to replace the aging HuRMan portal for agency data access.
- Designed, and began development of an MVC 5 version of the SecurePASS portal
- Continued development, design, and refinement, as well as began integration testing of the new Health Benefits Direct (HBD) application (phase one for TLC benefits administrators) and its server components with the SecurePASS portal.
- Enhanced, tested, and implemented the new Health Benefits Direct Administration application, providing support and administrative functions for the HBD application.
- Enhanced and began testing of the Universal Security Validator 4.0 application, a security web module which is added to DHRM web applications to ensure only authorized access to the web applications. This new version works in conjunction with SecurePass, accepting SecurePass as a valid portal for access to web applications.
- Designed, developed, and implemented a new P3/P3A ASP.NET MVC Web Application with more robust reporting tools and search capabilities to replace the current P3/P3A application. (NOTE: the new P3/P3A Web Application is in the process of being tested and integrated with the new SecurePass Portal).
- Partnered with DHRM ISOs to conduct HBD application and HBD Admin application security assessments.
- Partnered with DHRM Web Master to conduct HBD accessibility review and implemented accessibility requirements and features as requested.
- Made updates to the Health Benefits Online application for State employee Open Enrollment to improve user experience and update content.
- Successful Open Enrollment via Health Benefits Online for State employees.

The following BES CRM systems support accomplishments were completed:

- Identified CRM migration path.
- Engaged Microsoft to partner with for CRM migration and upgrade.
- Worked with DHRM ISOs, Microsoft, VITA/NG, and c360 to identify and execute a CRM migration path.
- Partnered with Microsoft and VITA/NG to setup and configure a new CRM environment to migrate from CRM 4.0 to CRM 2015.
- Partnered with Microsoft to migrate existing data and configurations from CRM 4.0 to CRM 2015.
- Partnered with c360 to install c360 Import Manager software and migrate existing import packages to CRM Import Manager for CRM 2015.
- Added additional customizations to Contacts, Accounts, and Issues/Cases screens to improve functionality and provide additional reporting capabilities.

- Partnered with Microsoft to expand customizations to Accounts, Cases, Contacts, and security roles within CRM for OHB.
- Maintained and updated monthly Local Choice file import.
- Maintained and updated weekly Benefit Administrator import.
- Customizations added for The Local Choice.
- Maintained and updated monthly CRM import process of BES contacts file (175,000+ records).
- Enhanced CRM (server and Outlook client) with updated software.
- Modified and created reporting to analyze data, data entry habits, and user performance.

The following IT administration accomplishments were completed:

- Completed research and purchasing for various types of software and hardware.
- Completed testing for various software packages.
- Completed various administrative requests.'
- Completed network drive switch, including providing assistance to end users.
- Completed development and implementation of automated processes to free disk space on network storage devices.
- Designed "hotel" space for teleworking options.
- Configured and successfully linked new fax machines to COV network.
- Completed ad hoc setup of virtual environment for PMIS migration.
- Provided software and hardware support to DHRM employees

The following additional technology support accomplishments were completed:

- 26 virtual servers and workstations were built and managed to expedite the PMIS Development effort at a savings of approximately \$215,000 over the course of development and saving approximately 5 months of lead time.
- Development SharePoint environment was built and administered to provide proof-of-concept for agency wide SharePoint deployment in 2017.
- Agency FTP/SFTP infrastructure was completely upgraded to provide more enhanced and secure file transfer.
- Several automation initiatives have been implemented allowing developers to utilize self-service options for tedious tasks or administrative needs such as IIS Resets which have significantly enhanced user satisfaction and productivity.
- Created and implemented DHRM Inventory application to track internal hardware and software assignments centrally with a web front-end
- Continued refinement and implementation of additional architecture for the new Health Benefits Direct application to handle future BES business processes.
- Aided in processing of TLC Datasheets by creating fillable PDF forms which were then received, processed, and loaded into BES.
- Created fillable PDF forms for OHB's ACA reporting to report monthly counts. All forms were process successfully and included in the reporting to the IRS.
- Successfully helped OHB generate a report called 'FactSheet' for all groups showing their setup for health care options, contact information, and additional information for groups to verify the accuracy of the DataSheets.
- Responded to various Support emails (COVKC, EmployeeDirect, HBO, HuRMan).

The Time, Attendance and Leave (TAL) System

In FY12 DHRM sought and received a received a grant from Virginia's Productivity Investment Fund (approx. \$700K to use through the end of FY13) to build a time, attendance and leave system. The system is intended for use by executive branch and other agencies that use PMIS

and need to replace their current and intensely manual / paper-based time and leave keeping processes.

By end of FY16 DHRM had:

- rolled out the TAL system to 16 new agencies (bring the total number of agencies that have adopted the system to 59 and the total number of users to over 15,500). This roll out has provided agencies with a no-charge-to-agency system to manage employee time and leave.

During FY16 the TAL Support Team:

- On-boarded 16 agencies began using TAL during this timeframe bringing the total number of TAL agencies to 59 (and over 15,500 active users). The TAL team imported and configured agency and employee data for these agencies and assisted in the pre- and post-onboarding efforts.
- Held 8 two-day TAL Training classes for privileged users and trained 84 attendees
- Completed mass uploads of recognition leave into TAL for approximately 20 agencies
- Created leave liability data/reports in TAL for agencies and provided instructions/support
- Implemented functionality that allowed faculty leave to be tracked within TAL
- Received and responded to over 925 support issues
- Resolved approximately 20 bugs

Telecommunications, Help Desk and Administrative Support

The following telecommunications support tasks were accomplished:

- Reviewed and processed the monthly telecommunications bill for DHRM from VITA.
- Provided PMIS Help Desk support with incoming issues and helped with PMIS keying as needed.

Narrative description of the factors impacting agency IT

Lack of funding and staffing

The lack of adequate funding and staffing threatens the overall quality of the Agency's services, its ability to initiate much needed new programs, its ability to compete in the market for talent, and the timely implementation of system changes and updates. The rates implemented annually by the VITA/NG partnership increase DHRM IT costs without increase of services provided and without supporting funding for that increase.

Quick and accurate response to inquiries

DHRM must be able to respond quickly and accurately to information queries from various constituents such as the Governor, the General Assembly, management, employees, the public, and the press; it needs flexible systems to be able to adapt to unplanned mandates. The agency's ability to respond is hampered by the lack of staff and systems integration. A medium/long-term solution would be the migration of the legacy systems to a client server web based system.

Lack of succession planning and staff backup

The lack of adequate staffing levels engenders two critical threats to the continuity of IT service provided by DHRM systems. First, due to inadequate staffing levels, there is little to no cross training to build staff-resource backup capacity in the event of an emergency. Second, due to inadequate staffing levels, there is little or no succession planning to ensure continuity of service due to the normal attrition of staff. As a general rule, automated systems degrade and eventually fail without senior technical staff to maintain them.

Overview of IT in DHRM for FY2015-2016 and Biennium

- Continue with the Migrating the Personnel Information Management System (PMIS) database and its applications from a legacy mainframe, hierarchical environment to a client server web enable relational database.
- Web-enabling the Personnel Information Management System (PMIS) and providing secure web-based access for employees to their personal information.
- Implementation of more workforce planning tools during the 2015-2016 biennium to allow different types of data analyses
- Implementation of additional employee 24-7 self-service applications available to all employees during 2015-2016 biennium through the EmployeeDirect portal
- Implementation of a new Secure HuRMan portal with additional features and HR tools available to agencies HR personnel and Benefits Administrators
- On-boarding new agencies and implementation of new features in the Time Attendance and Leave (TAL) project during FY 2015-2016.
- Continuing providing PMIS/BES data to VRS in support of HB 1830 which mandates automatic enrollment in the Commonwealth's 457 Deferred Compensation Plan for salaried state employees hired or rehired on or after January 1, 2008.
- Maintaining the partnership with DOA to increase the integration of PMIS and the DOA Payroll (CIPPS) to have both enterprise systems holding consistent information. DHRM is managing the administration and ownership of Employee Identification Numbers, which are now used as unique, required person identifiers in both PMIS and CIPPS. Also, PMIS is driving the edits and validation of mailing addresses based on the official standards adopted by USPS to make PMIS and CIPPS consistent in address information and format.